

**THE PREVIOUSLY UNDESCRIBED FEMALES OF  
*BORDITARTESSUS CASULAENSIS* F. EVANS AND  
*MICROTARTESSUS IDYIA* (KIRKALDY) (HOMOPTERA:  
CICADELLIDAE: TARTESSINAE)**

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**Abstract**

The previously unknown females of the tartessine leafhoppers *Borditartessus casulaensis* F. Evans and *Microtartessus idyia* (Kirkaldy) are described, with emphasis being placed on genitalia and associated structures. Supplementary information on the males of both species is provided. *B. casulaensis* is newly recorded from north-eastern New South Wales and south-eastern Queensland.

**Introduction**

The subfamily Tartessinae is one of eighteen cicadellid subfamilies currently known to occur in Australia (Fletcher and Stevens 1988). J.W. Evans (1966) and Knight (1983) state that the subfamily is confined to the Oriental and Australian Regions; it has been suggested that the subfamily originated in Australia during the Tertiary period (J.W. Evans 1966).

The most recent work to incorporate a revision of the Australian Tartessinae is that of F. Evans (1981), who recognised 67 Australian species in 22 genera. Only two of these species extend beyond Australia to New Guinea, which has its own extensive and largely unique tartessine fauna.

Species recognition within the Cicadellidae currently relies heavily on structures associated with the male genitalia (Le Quesne 1983), especially the aedeagus (Blocker and Triplehorn 1985). As a consequence, new species are generally described on the basis of male specimens with or without associated females. Within the Australian Tartessinae, females are known for only 32 of the 67 currently recognised species and at present confident identification of single female specimens is generally not possible, even at the generic level. The key to genera provided by F. Evans (1981) only allows the generic placement of female specimens if they fall within two of the 22 genera occurring in Australia.

When more tartessine females are known from male-correlated material it should be possible to construct a generic key that is not dependent on male characters. In addition, phylogenetic analysis of the group based on both male and female characters may help to verify the current generic placement of species.

**Methods**

Specimens were examined and illustrated using a Wild M5 stereomicroscope fitted with a Wild camera lucida. Ovipositors were

examined after maceration of abdomens in hot 10% w/v aqueous KOH and dissection in 70% ethanol.

*Borditartessus casulaensis* F. Evans

Holotype male: Cabramatta, New South Wales, 4.iii.1971, M. Nikitin. Reg'n No. K71476, Australian Museum, Sydney. Other material examined: 1 male, 1 female, Wreck Rock, 16 km S of Agnes Water, Qld, at light, 9-14.xii.1986, D. Rugg, L. Sanchez, *et al.*; 2 males, hind dunes, Lennox Head, N of Ballina, N.S.W., 10.iii.1981, M.J. Fletcher and G.R. Brown. At mercury vapour light. Specimens in the collection of the N.S.W. Department of Agriculture Scientific Collections Trust, Biological and Chemical Research Institute, Rydalmere.

Female (Figs 1, 2)

*Length*: 7.34 mm (n = 1).

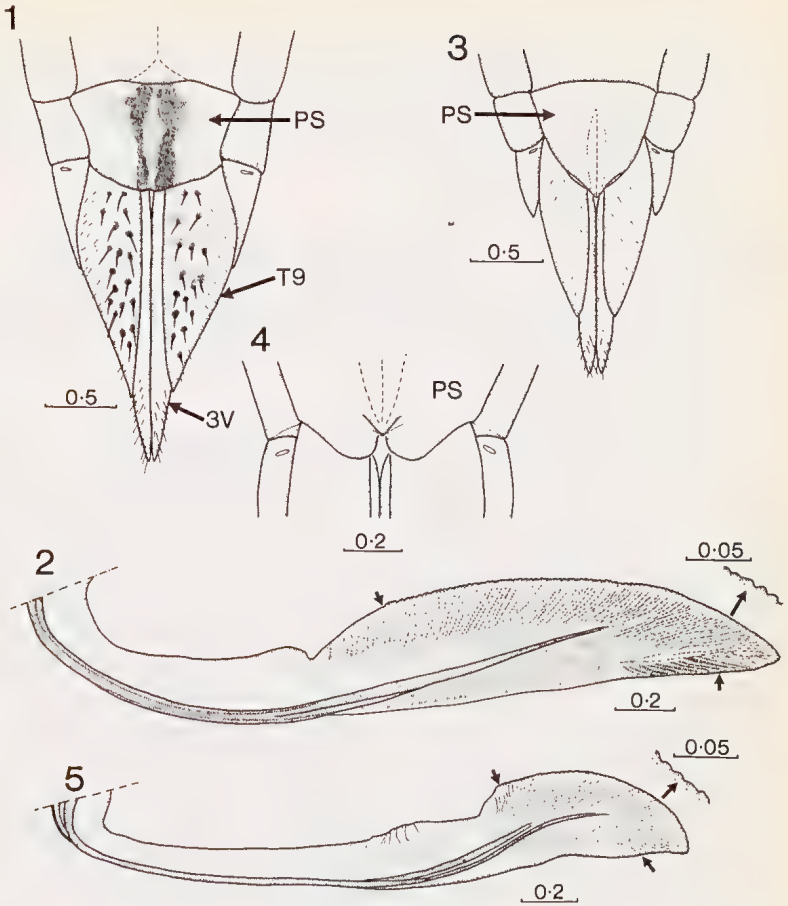
Crown pale brown, ocelli pink. Face pale brown, anteclypeus, lora and lower half of frontoclypeus tending to stramineous. Margins of maxillary plates tending to mid brown. Labium short, terminating level with midpoints of fore trochanters. Pronotum pale brown, more or less transversely striate, striae vague laterally; posterior margin very narrowly mid brown. Scutellum pale brown, shagreen areas near lateral corners slightly darker, margins at lateral corners cream/stramineous. Tegmina pale hyaline brown, margin of appendix and claval vein darker. Venation of typical tartessine form with three closed subapical cells. Appendix of moderate width, extending around tegminal apex. Hind femoral setal formulae 2+2+1, proximal seta small.

Folded tegmina extending beyond apex of abdomen. Ventral surface of abdomen mainly cream with a few sparse and vaguely defined smoky markings. Pregenital sternite (PS, Fig. 1) with a median longitudinal ridge, posterior margin with a small median notch; cream laterally, medial region marked with pale, mid, and dark brown. Ventral surface of T9 pale brown tending to cream medially, each side bearing numerous stout spines arising from dark brown patches. Third valvulae (3V, Fig. 1) mid brown, setose apically. Ovipositor (Fig. 2) dorsally serrate in apical half, serrations small, diminishing in size distally and extending around apex onto preapical area of ventral surface. Dorsal serrate area raised above level of shaft.

Male (Figs 6, 7)

*Length*:  $\bar{x}$  = 6.48 mm, range 6.27-6.91 mm, n = 4.

With the exception of terminal abdominal segments, as for female; holotype and Wreck Rock specimen slightly paler, pale orange/brown in general colouration; Lennox Head specimens considerably darker, especially dorsally, tending to mid orange/brown with tegmina hyaline mid brown, paler in costal area, margin of appendix smoky.



FIGS 1-5. 1, 2, *Borditartessus casulaensis*: (1), apex of female abdomen, ventral view; (2), ovipositor, lateral view, with detail of preapical serrations. 3-5, *Microtartessus idyia*: (3), apex of female abdomen, ventral view (colour pattern omitted); (4), apical region of female pregenital sternite and surrounding areas, oblique ventral view (colour pattern omitted); (5), ovipositor, lateral view, with detail of preapical serrations.

PS, pregenital sternite; T9, abdominal tergum 9; 3V, third valvula; arrows directed towards ovipositor margins (Figs 2 and 5) indicate boundaries of serrate areas. Scale bars in mm.

Appendix slightly broader than in female. Hind femoral setal formula  $2+2+1$  or  $2+2+0$ , preapical rows poorly defined.

M.J. Fletcher (*pers. comm.*) has commented on variation in aedeagal structure between males of *B. casulaensis*. Known extremes of aedeagal shape are shown in Figs 6 and 7.

*Microtartessus idyia* (Kirkaldy)

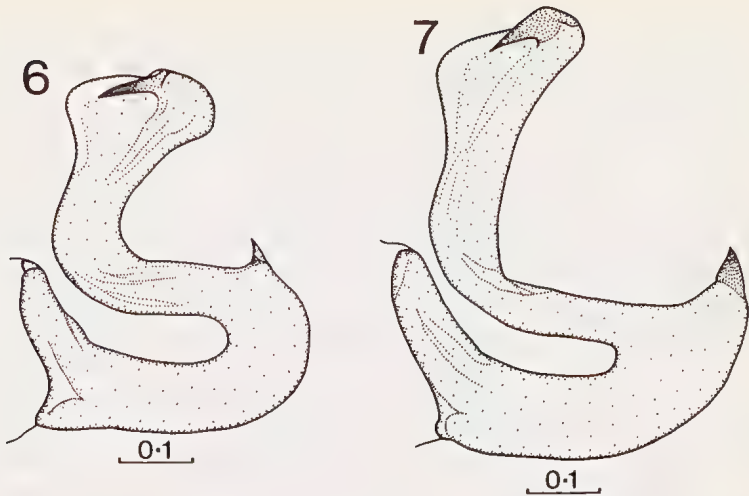
Material examined: 1 male, 1 female, Louisiana Stn, 30 km N of Cooktown, Qld, 6.xii.1986, M.S. and B.J. Moulds. Collected at light. Specimens in the collection of the New South Wales Department of Agriculture Scientific Collections Trust, Biological and Chemical Research Institute, Rydalmere.

Female (Figs 3-5)

*Length*: 6.77 mm ( $n=1$ ).

Anterior region of crown very dark brown/black; area posterior to ridges connecting ocelli cream. Vertex with an irregular mid brown area medially, black laterally. Frontoclypeus black, dorsal region irregularly mid brown, dorsal two-thirds of lateral margins below level of antennal ledges cream. Frontoclypeus below level of antennal bases strongly shagreen. Maxillary plates, anteclypeus and lora black, margins of maxillary plates and apex of anteclypeus with sparse mid brown markings. Antennal bases cream. Labium short, reaching a point level with apices of fore trochanters. Pronotum uniformly pale orange with some sparse brown markings near lateral borders adjacent to eyes; lateral corners narrowly dark brown. Scutellum translucent pale brown, lateral margins and posterior corner yellow/cream. Tegmina pale/mid smoky hyaline brown with dark brown markings, principally in appendix, apical cells and costal region. Veins mid or dark brown. Appendix broad, extending around tegminal apex. Hind femoral setal formula  $2+1+1$  (preapical rows close together).

Folded tegmina extending beyond apex of abdomen. Abdominal sterna smoky cream, S5 and S6 pale brown with mid/dark brown markings laterally. Ventrally directed regions of abdominal terga very dark brown, posterior margins narrowly cream/stramineous. Pregenital sternite (PS, Figs 3, 4) with conspicuous longitudinal trench in apical three-quarters, apex acute in ventral view, preapical lateral margins curved dorsally and under apex; cream laterally, smoky brown medially and along margin with S6. T9 black, lacking stout spines but with a few fine pale hairs. Third valvulae black tending to smoky mid brown medially and basally; setose. Ovipositor (Fig. 5) dorsally serrate only in apical third, serrations very small, extending around apex on to preapical area of ventral surface. Dorsal serrate area conspicuously raised above level of shaft.



FIGS 6-7. Lateral view of aedeagus of *Borditartessus casulaensis* from Lennox Head, N.S.W. (6) and Wreck Rock, Qld (7). Scale bars in mm.

#### Male

*Length*: 5.47 mm (n = 1).

With the exception of terminal abdominal segments, similar to female, except generally darker. Anterior region of crown black; face entirely black except for antennal bases and pale brown markings on dorsal two-thirds of frontoclypeal margins below antennal ledges. Pronotal apex narrowly very dark brown/black. Scutellum with yellow/cream markings at apical corner not extending along lateral margins. Tegmina darker than in female, dark brown markings more extensive and present in claval region, especially between A2 and margin. Number of M crossveins variable.

#### Discussion

*B. casulaensis* has previously been recorded only from the Sydney region (F. Evans 1981); the identification of further specimens from Lennox Head in northern New South Wales, and Wreck Rock in south-eastern Queensland considerably extends the known distribution of the species.

The colouration of the male *M. idyia* specimens described by F. Evans (1981) differs considerably from that shown by the specimens described here. Her description of *M. idyia* indicates that the pronotum and scutellum are black, whilst in the specimens from Louisiana Station these structures are mainly orange, and pale brown with yellow/cream markings respectively. Colouration is clearly highly

variable within *M. idyia* and this suggests colouration may be of limited diagnostic value elsewhere within the subfamily. This is supported by the observed colour differences in male specimens of *B. casulaensis*; the specimens from Lennox head are considerably darker than both the Wreck Rock specimen and the holotype.

*M. idyia* does not key out correctly in F. Evans (1981). Examination of both the male specimen from Louisiana Station and the figure provided by F. Evans (1981, Fig. 5E) indicates that male *M. idyia* have well developed accessory processes associated with the tenth abdominal segment, causing the appropriate section of the key to be bypassed.

### Acknowledgements

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